

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MAREIKE KLEE, WOLFGANG BRAND and HENRICUS VAN HAL

Appeal No. 95-4963
Application No. 08/151,589¹

ON BRIEF

Before CAROFF, JOHN D. SMITH and PAK, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 19, 21 through 25 and 27 through 37, which are all of the claims remaining in the application.

¹ Application for patent filed November 12, 1993. According to appellants, the application is a continuation of Application No. 07/927,702, filed August 7, 1992, now abandoned.

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The subject matter on appeal is directed to a method of manufacturing a ferroelectric layer of bismuth-titanate having formula $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ on a substrate. This subject matter is adequately illustrated in independent claim 19 which is reproduced below:

19. A method of manufacturing a ferroelectric layer of bismuth-titanate $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ on a substrate, said method comprising the steps of

- a) forming a stoichiometric mixture of bismuth and titanium in the form of either a metallo-organic compound or a metallo-inorganic compound or both mixed in an organic solvent,
- b) homogeneously mixing said compounds in the solvent,
- c) applying said solution to a substrate,
- d) thermally treating said solution at reaction temperatures ranging from 500EC to 650EC in a vacuum free atmosphere so that, a layer of bismuth-titanate $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ is formed on said substrate to a thickness of about 0.1 to 2 Fm.

The references relied on by the examiner are:

Bardhan et al. (Bardhan)	5,004,713	Apr.
2, 1991		

Yi et al. (Yi), "Sol-Gel Processing of Complex Oxide Films," Ceramic Bulletin, Vol. 70, No. 7 (1991) pp. 1173-1179 (hereinafter referred to as "Yi").

The appealed claims stand rejected as follows:

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(1) Claims 25, 30 and 35 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants

regard as their invention; and

(2) Claims 19, 21 through 25 and 27 through 37 under 35 U.S.C. § 103 as unpatentable over the combined teachings of Bardhan and Yi.

We reverse each of the above rejections. We reverse the examiner's § 112 rejection for essentially those reasons set forth at pages 11 through 13 of the Supplemental Appeal Brief. We also reverse the examiner's § 103 rejection inasmuch as the examiner has not presented adequate factual basis to support his conclusion of obviousness. As indicated by appellants at pages 5 through 7 of the Supplemental Appeal Brief, the examiner has not only failed to supply evidence to establish that the claimed formula $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ is identical to or would have been rendered obvious by the formula $\text{Bi}_2\text{O}_3 \cdot x\text{TiO}_2$ described by Bardhan, but also failed to supply evidence to establish that employing a stoichiometric mixture of bismuth and titanium to form $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ is taught or would have been rendered obvious by the combined teachings of Bardhan and Yi. In this regard, we note that the examiner does not point to any teaching or suggestion which is directed to the employment of a stoichiometric mixture of

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bismuth and titanium. We also note that, when x is $3/2$ (1.5)
as

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indicated by the examiner, Bardhan's bismuth titanate has a formula $\text{Bi}_2\text{Ti}_{1.5}\text{O}_6$, not the claimed formula $\text{Bi}_4\text{Ti}_3\text{O}_{12}$. Although $\text{Bi}_2\text{Ti}_{1.5}\text{O}_6$ and $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ have the same proportions of bismuth, titanium and oxygen, the examiner has not established that the differences in the total number of atoms and weight are not significant in the formation of a ferroelectric material having different structures or properties.

The decision of the examiner is reversed.

REVERSED

MARC L. CAROFF)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
JOHN D. SMITH)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
CHUNG K. PAK)	
Administrative Patent Judge)	

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Serial No.

08/151,589

Judge PAK

Judge JOHN D. SMITH

Judge CAROFF

Received: 04 Aug

98

Typed: 05 Aug
Revision: 21 Aug

98

98

DECISION: REVERSED

Send Reference(s): Yes No
or Translation(s)

Panel Change: Yes No

3-Person Conf. Yes No

Heard: Yes No

Remanded: Yes No

Brief or Heard

Group Art Unit: 1112

Index Sheet-2901 Rejection(s):

Acts 2: _____

Palm: _____

Mailed:

Updated Monthly Disk: _____

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Updated Monthly Report: ____